

Notice of Allowability

Application No.

10/777,710

Examiner

Tuan V. Thai

Applicant(s)

OBERLAENDER, KLAUS J.

Art Unit

2186

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to amendment filed 10/26/2007.
2. ☒ The allowed claim(s) is/are 1-4, 6-8, 10-13, 16-19 and 22-24 renumbered as 1-18 respectively.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some* c) ☐ None of the:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO/SB/08),
Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit
of Biological Material
5. ☐ Notice of Informal Patent Application
6. ☐ Interview Summary (PTO-413),
Paper No./Mail Date _____
7. ☐ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____

TUAN V. THAI
PRIMARY EXAMINER

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Attorney's Docket No.: AUS920041083US1

**IN THE UNITED STATES PATENT AND
TRADEMARK OFFICE**

In re application of: Oberlaender, Klauss J. **Group:** 2186
Serial No.: 10/777,710 **Examiner:** Tuan Thai
For: ***FAST UNALIGNED CACHE ACCESS SYSTEM AND METHOD.***

1. This action is responsive to amendment filed October 26, 2007. Claims 5, 9, 14, 15, 20 and 21 have been canceled. Claims 1-4, 6-8, 10-13, 16-19 and 22-24 are now allowed.

REASONS FOR ALLOWANCE

2. The following is an Examiner's Statement of Reasons for Allowance:

The prior arts of record do not teach nor suggest, *either alone or in combination*, **all** the limitations of the amended claims of the current invention (claims 1, 13 and 19).

Particularly, the prior arts of record do not teach nor suggest all the combined limitations in each claim separately including a cache unit of claim 1, wherein the cache unit comprises a first memory tower, having a first way sub-tower and a second way sub-tower; and a second memory tower, having a first way sub-

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tower and a second way sub-tower, wherein a first cache line of the cache unit includes a first plurality of data segments in the first way sub-tower of the first memory tower and a second plurality of data segments in the first way sub-tower of the second memory tower; a first way multiplexer having a first input port coupled to the first way sub-tower of the first memory tower, a second input port coupled to the first way sub-tower of the first memory port; and an output port; and a data aligner coupled to the output port of the first way multiplexer and the output port of the second way multiplexer. In addition, the prior arts of record do not further teach nor discloses a cache unit and a method of operating a cache unit having a first memory tower and a second memory tower of claims 13 and 19, wherein the method comprises storing a first plurality of data segments of a first cache line in a first way sub-tower of the first memory tower; storing a second plurality of data segments of the first cache line in a first way sub-tower of the second memory tower; storing a first plurality of data segments of a second cache line in a second way sub-tower of the first memory tower; and storing a second plurality of data segments of the second cache line in a second way sub-tower of the second memory tower; activating a first physical line of the first memory tower, wherein the first physical, line includes data segments from the first cache line and the second cache line; and activating a second physical line

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of the second memory tower, wherein the second physical line of the second memory tower includes data segments from the first cache line and the second cache line, wherein the first physical line of the first memory tower has a different address than the second physical line of the second memory tower; similarly as being applied for claim 19. In light of the foregoing, claims 1, 13 and 19 of the present application are found to be patentable over the prior arts.

Claims 2-4, 6-8, 10-12, 16-18 and 22-24 further limit the allowable independent claims 1, 13 and 19. These claims are therefore allowable for the same reason as set forth above.

Any comments considered necessary by Applicant must be submitted no later than the payment of the Issue Fee and, to avoid processing delays, should preferably accompany the Issue Fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

3. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tuan V. Thai whose telephone number is (571)-272-4187. The examiner can normally be reached on from 6:30 A.M. to 4:00 P.M..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mathew M. Kim can be reached on (571)-272-4182. The fax phone number for the

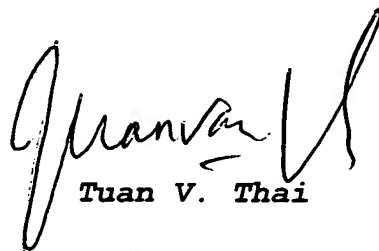
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organization where this application or proceeding is assigned is 571-273-8300. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

TVT/November 16, 2007

A handwritten signature in black ink, appearing to read 'Tuan V. Thai', is written over a printed name.

Tuan V. Thai

PRIMARY EXAMINER

Group 2100